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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/599,993	06/23/2000	Atsunobu Murase	0102/0127	8979

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EXAMINER	
BRINEY III, WALTER F	

ART UNIT	PAPER NUMBER
2644	

DATE MAILED: 10/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

R-1

Office Action Summary	Application No.	Applicant(s)	
	09/599,993	MURASE, ATSUNOBU	
	Examiner	Art Unit	
	Walter F Briney III	2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 June 2000* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 April 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *2,4,5,7* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation **"said presently sampled level"** in lines 10 and 15, the limitation "**said previously sampled level**" in lines 11 and 16, the limitation "**said presently estimated environmental noise level**" in line 16, the limitation "**said previously estimated environmental noise level**" in lines 18 and 21, and the limitation "**said estimated environmental noise level**" in line 20. There is insufficient antecedent basis for this limitation in the claim.

Claims 2-8 are indefinite due to dependence on claim 1.

Claim 9 recites the limitation **"said presently sampled level"** in lines 10 and 15, the limitation "**said previously sampled level**" in lines 11 and 16, the limitation "**said presently estimated environmental noise level**" in line 17, the limitation "**said previously estimated environmental noise level**" in lines 18 and 21, and the limitation "**said estimated environmental noise level**" in line 20. There is insufficient antecedent basis for this limitation in the claim.

Claim 10 recites the limitation **"said presently sampled level"** in lines 15 and 20, the limitation "**said previously sampled level**" in lines 16 and 21, the limitation "**said presently estimated environmental noise level**" in line 22, the limitation "**said previously estimated environmental noise level**" in lines 23 and 26, and the limitation "**said estimated environmental noise level**" in line 25. There is insufficient antecedent basis for this limitation in the claim.

Claim 11-14 are indefinite due to dependence on claim 10.

Claim 15 recites the limitation **"said presently sampled level"** in lines 12 and 17, the limitation "**said previously sampled level**" in lines 13 and 18, the limitation "**said presently estimated environmental noise level**" in line 19, the limitation "**said previously estimated environmental noise level**" in lines 20 and 22, and the limitation "**said estimated environmental noise level**" in line 21. There is insufficient antecedent basis for this limitation in the claim.

Claim 16 recites the limitation **"said presently sampled level"** in line 12, the limitation "**said previously sampled level**" in lines 12-13, the limitation "**said presently estimated environmental noise level**" in lines 13-14, the limitation "**said previously estimated environmental noise level**" in lines 14-15 and 17, and the limitation "**said estimated environmental noise level**" in line 16. There is insufficient antecedent basis for this limitation in the claim.

Claims 17-22 are indefinite due to dependence on claim 16.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 9 is rejected under 35 U.S.C. 102(b) as being anticipated by Katayanagi (US Patent 5,732,390).

Claim 9 is limited to **an environmental noise level estimation apparatus comprising: detection means for detecting a level of a sound signal including a voice signal and an environment noise signal**; Katayanagi discloses a VSELP encoder that determines frame power (i.e. level of sound) where the frame contains voice and noise (column 3, line 52-column 4, line 4). **Sampling means for repeatedly sampling said level at a first interval**; Katayanagi discloses using frames for noise calculation where the frames are inherently sampled at a first interval (column 7, lines 49-59). **Variation detection means, having first storing means, responsive to said sampling means, for detecting whether said presently sampled level increases form said previously sampled level**; Katayanagi discloses a noise domain detection unit that stores previous samples (i.e. storing means) and calculates changes in frame energy (i.e. detects increases) (column 9, lines 1-36). **Estimation means; having second storing means, for estimating and renewing an environmental noise level of said voice signal to output said environmental noise level at a second interval**; Katayanagi discloses a noise level detection circuit that stores a previous noise level

(i.e. second storing means) and outputs an updated noise estimate sometime after sampling a frame (i.e. second interval) (column 11, line 56-column 12, line 46). **When said presently sampled level increases from said previously sampled level, difference between said presently estimated environmental noise level is lower than a predetermined value to gradually vary said estimated environmental noise level from said previously estimated environmental noise level**; Katayanagi discloses adding small increments to the noise estimate so that it is no more than an upper limit if the new noise level is greater than the old level (i.e. present sample increased from previous sample) (column 11, line 56-column 12, line 46). **Wherein said first interval agrees with said second interval**. Katayanagi discloses performing all operations based on the current frame so the first interval based on the frame clock inherently matches with the second interval (i.e. agrees). Therefore, Katayanagi discloses all limitations of the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-4, 8, 10-11, and 15-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katayanagi.

Claim 1 is limited to **an environmental noise level estimation apparatus comprising: detection means for detecting a level of a sound signal including a voice signal and an environmental noise signal**; Katayanagi discloses a VSELP encoder that determines frame power (i.e. level of sound) where the frame contains voice and noise (column 3, line 52-column 4, line 4). **Sampling means for repeatedly sampling said level in response to a clock signal**; Katayanagi discloses using three consecutive frames (i.e. repeatedly sampled level) (column 7, lines 49-59) for each noise calculation where using a clock to sample digital communication frames is well known in the art. It would have been obvious to one of ordinary skill in the art at the time of the invention to use a clock to sample the received frames of Katayanagi for the purpose of synchronizing the processor circuitry to the rate of received frames to minimize inter-symbol interference due to under-sampling. **Variation detection means, having first storing means, response to said clock signal**; Katayanagi discloses using previously stored frames, which inherently demands the use of a storing means that receives frames as they are sampled (i.e. in response to clock) (column 9, lines 1-36). **For detecting whether said presently sampled level increased from said previously sampled level**; Katayanagi discloses comparing previous frames to determine if they have changed (i.e. increased) (column 9, lines 1-36). **Estimation means, having second storing means responsive to said clock signal**; Katayanagi discloses comparing a new noise estimate to an old noise estimate after storing the noise level (i.e. in response to clock) (column 10, lines 40-44). **Estimating, renewing, and outputting an environmental noise level of said environmental noise signal**;

Katayanagi discloses updating an estimate of noise (column 11, line 56-column 12, line 46). **Such that, when said presently sampled level increases from said previously sampled level, difference between said presently estimated environmental noise level and said previously estimated environmental noise level is lower than a predetermined value to gradually vary said estimated environmental noise level from said previously estimated environmental noise level**; Katayanagi discloses adding small increments to the noise estimate so that it is no more than an upper limit if the new noise level is greater than the old level (i.e. present sample increased from previous sample) (column 11, line 56-column 12, line 46). Therefore, Katayanagi makes obvious all limitations of the claim.

Claim 2 is limited to **an environmental noise level estimation apparatus as claimed in claim 1**, as covered by Katayanagi, **wherein said variation detection means further detects whether said presently sampled level decreases from said previously sampled level**; Katayanagi discloses measuring changes between frames (i.e. when a level decreases) (column 9, lines 1-36). **When said presently sampled level decreases, said estimation means estimates said environmental noise level such that said presently estimated environmental noise level corresponds to said presently sampled value to immediately decrease said presently estimated environmental noise level**; Katayanagi discloses decreasing the current noise estimate if the new noise level is lower than the old noise level (column 11, line 56-column 12, line 46). Therefore, Katayanagi makes obvious all limitations of the claim.

Claim 3 is limited to **an environmental noise level estimation apparatus as claimed in claim 1**, as covered by Katayanagi, **wherein said detection means comprises power level detection means for detecting a power of said sound signal and output said detected power as said level**; Katayanagi discloses a VSELP encoder where the output R_0 is a measurement of signal power (column 3, lines 52-62). Therefore, Katayanagi makes obvious all limitations of the claim.

Claim 4 is limited to **an environmental noise level estimation apparatus as claimed in claim 1**, as covered by Katayanagi, **further comprising comparing means for comparing said detected level with a predetermined value**; Katayanagi discloses comparing the new input frame to a threshold (figure 2, elements S4 and S6). **Wherein said estimation means estimates said environmental noise level only when said detected level is smaller than said predetermined value**; Katayanagi discloses marking the frame as not noise if the frame is greater than the threshold (figure 2, element S9 and column 8, lines 23-29). Therefore, Katayanagi makes obvious all limitations of the claim.

Claim 8 is limited to **an environmental noise level estimation apparatus as claimed in claim 1**, as covered by Katayanagi, **further comprises voice presence detection means for detecting the presence of voice signal in accordance with an output of said detection means**; Katayanagi discloses marking a frame as voice based on frame parameters (column 3, lines 40-51 and column 9, lines 38-42). **Wherein said environmental noise level detection means stops said estimation means while said voice presence detection means detects the presence of voice**

signal; Katayanagi discloses that the noise flag is set to 0 in the presence of voice and the noise level estimator is prevented from receiving new inputs and therefore it does not update (column 10, lines 1-22). Therefore, Katayanagi makes obvious all limitations of the claim.

Claim 10 is essentially the same as claim 1, as covered by Katayanagi. Therefore, Katayanagi has been shown to disclose all limitations of the claim with the exception of **a microphone for receiving sound and generating a sound signal including a voice signal and an environmental noise signal**; Katayanagi discloses a microphone (figure 1, element 1) that is responsive to voice and noise. **Communication means for transmitting said voice signal in a radio wave signal and receiving another voice signal**; Katayanagi discloses an antenna (figure 1, element 1). **Reproducing means for reproducing said voice signal in accordance with said another voice signal**; Katayanagi discloses a speaker (figure 1, element 14). **Volume control means for controlling a volume of said reproduced voice signal in accordance with said estimated environmental noise level**; Katayanagi discloses a controller that generates volume levels based on the results of the noise level detection circuit (column 4, lines 56-60 and column 11, line 56-through column 12, line 46). Therefore, Katayanagi makes obvious all limitations of the claim.

Claim 11 is limited to **a communication apparatus as claimed in claim 10**, as covered by Katayanagi, **further comprising a codec means for coding voice signal at a predetermined interval to supply said coded voice signal to said communication means as said voice signal**; Katayanagi discloses a VSELP encoder

for encoding the voice where it is known in the art to use a specific frame rate for the VSELP encoding (column 4, line 61-column 5, line 12). It would have been obvious to one of ordinary skill in the art at the time of the invention to use a predetermined frame-encoding rate to implement the VSELP encoder of Katayanagi. **Decoding means for decoding said another voice signal at said predetermined interval to supply said decoded another voice signal to said reproducing means as said voice signal**; Katayanagi discloses a VSELP decoder that inherently operates at the same frame rate of the encoder to decode a received voice signal and output to a speaker (figure 1, elements 10 and 14 and column 5, lines 43-64). **Wherein said predetermined interval corresponds to an interval of said clock signal**; Katayanagi discloses VSELP encoding which uses a frame clock that is the same as said clock signal. Therefore, Katayanagi makes obvious all limitations of the claim.

Claim 15 is essentially the same as claim 10 and is rejected for the same reasons.

Claims 16-19 are essentially the same as claims 1-4, respectively, and are rejected for the same reasons.

Claims 5-7, 12-14, and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katayanagi in view of Gerson et al. (Acoustics, Speech, and Signal Processing, 1990. ICASSP-90., 1990 International Conference on , 3-6 April 1990 Page(s): 461 -464 vol.1.).

Claim 5 is limited to **an environmental noise level estimation apparatus as claimed in claim 1**, as covered by Katayanagi. Therefore, Katayanagi has been shown

to disclose all limitations of the claim with the exception of **an interval of said clock signal is smaller than 250 msec**; Katayanagi discloses using a VSELP processor as in using frames with an inherent clock where it is well known in the art to use a frame clock with a period of 20 msec (Gerson, page 461). It would have been obvious to one of ordinary skill in the art at the time of the invention to implement the VSELP processor of Katayanagi using a frame clock with a period of 20 msec as is well known in the art for the purpose of synchronizing the circuitry of the processor with the rate of received frames to minimize inter-symbol interference due to under-sampling.

Claims 6-7 are rejected for the same reasons as claim 5.

Claims 12-14 are rejected for the same reasons as claim 5.

Claims 20-22 are essentially the same as claims 5-7 and are rejected for the same reasons.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter F Briney III whose telephone number is 703-305-0347. The examiner can normally be reached on M-F 8am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester W Isen can be reached on 703-305-4386. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4700.

WFB
10/9/03

MINSUN OH HARVEY
PRIMARY EXAMINER